

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L2	13	("force feedback" or haptic) same "spring\$ force" with (button or icon)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/05/29 13:21
2	BRS	L1	13	("force feedback" or haptic) same "spring force" with (button or icon)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/05/29 13:24
3	BRS	L3	12354	("force feedback" or haptic) same spring wity force with (button or icon)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/05/29 13:25
4	BRS	L4	15	("force feedback" or haptic) same spring with force with (button or icon)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/05/29 13:26
5	BRS	L5	2	4 not 1	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/05/29 13:27

	Type	L #	Hits	Search Text	DBs	Time Stamp
6	BRS	L6	231	immersion\$.as.	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/05/29 13:28
7	BRS	L8	118	6 not 7	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/05/29 13:28
8	BRS	L7	113	immersion\$.as.	USPAT; US-PGP UB	2002/05/29 13:49
9	BRS	L9	15	immersion\$.as. and icon.clm.	USPAT; US-PGP UB	2002/05/29 14:43
10	BRS	L11	37	immersion\$.as. and spring.clm.	USPAT; US-PGP UB	2002/05/29 14:44
11	BRS	L12	2	immersion\$.as. and spring.clm.and icon.clm.	USPAT; US-PGP UB	2002/05/29 14:44

**NEC ResearchIndex**

Find:

Searching for **(force feedback or haptic) and spring force and icon**.

Restrict to: [Header](#) [Title](#) Order by: [Citations](#) [Introductory](#) [Usage](#) [Date](#) Also try: [Amazon](#) [Barnes & Noble](#) [Google \(RI\)](#) [Google \(Web\)](#) [CSB](#) [DBLP](#)

**Order: citations weighted by year.**

No documents found.

ResearchIndex currently uses Boolean syntax (e.g., "a and b")

### Suggestions:

Use "or" to separate alternatives.

If searching for an author try using only the last name.

Adjacent query terms default to one word proximity (words must occur next to each other).

**Suggested query: feedback**

For authors, list all variants that appear in citations, separated by "or", e.g.

m jordan or michael jordan or m i jordan or michael i jordan

Try your query at: [Amazon](#) [Barnes & Noble](#) [Google \(RI\)](#) [Google \(Web\)](#) [CSB](#) [DBLP](#)

ResearchIndex - [researchindex.org](http://researchindex.org) - [Terms of Service](#) - [Privacy Policy](#) - Copyright © 1997-2002 [NEC Research Institute](#)

**NEC ResearchIndex**

Find: (force feedback or haptic) and spring force and button  
Citations Documents

Searching for (force feedback or haptic) and spring force and button

Restrict to: [Header](#) [Title](#) Order by: [Citations](#) [Introductory](#) [Usage](#) [Date](#) Also try: [Amazon](#) [Barnes & Noble](#) [Google \(RI\)](#) [Google \(Web\)](#) [CSB](#) [DBLP](#)

**Order: citations weighted by year.**

No documents found.

ResearchIndex currently uses Boolean syntax (e.g., "a and b")

### Suggestions:

Use "or" to separate alternatives.

If searching for an author try using only the last name.

Adjacent query terms default to one word proximity (words must occur next to each other).

**Suggested query: feedback**

For authors, list all variants that appear in citations, separated by "or", e.g.

m jordan or michael jordan or m i jordan or michael i jordan

Try your query at: [Amazon](#) [Barnes & Noble](#) [Google \(RI\)](#) [Google \(Web\)](#) [CSB](#) [DBLP](#)

ResearchIndex - [researchindex.org](#) - [Terms of Service](#) - [Privacy Policy](#) - Copyright © 1997-2002 [NEC Research Institute](#)

Searching for (force feedback or haptic) and spring force

Restrict to: Header Title Order by: Citations Introductory Usage Date Also try: Amazon Barnes & Noble Google (RI) Google (Web) CSB DBLP

10 documents found. Order: citations weighted by year.

Adding Force Feedback to Graphics Systems: Issues and.. - Mark, Randolph.. (1996) (Correct)  
(32 citations)

...**Force Feedback** to Graphics Systems: Issues and Solutions William R. Mark 1 Scott C. Randolph 2 Mark Finch ... /... In particular, lengthy computations for graphics or simulation require a decoupling of the **haptic** servo loop from the main application loop if high-quality forces are to be produced. We present... /... of a plane which the probe can contact. [1] When the probe penetrates the plane, a restorative **spring force** that depends on the depth of the penetration is applied. The result is a surface with...

[www.cs.unc.edu/~billmark/SIG96withfonts.ps.Z](http://www.cs.unc.edu/~billmark/SIG96withfonts.ps.Z)

Haptic Feedback of Kinematic Conditioning for Telerobotic.. - Thavida Maneewarn And (1998)  
(Correct) (2 citations)

...performance in telerobotic control near kinematic singularities. Three different singularity **force feedback** methods are defined and studied. Experimental results with a **forcefeedback** master and simulated... /... **Haptic Feedback of Kinematic Conditioning for Telerobotic Applications** Thavida Maneewarn and Blake... /... configurations. Method 2. **Force feedback** modeled as spring and damper force. The direction of **spring force** is based on damped-null subspace of Jacobian matrix In order to increase the sensation of...

[rcs.ee.washington.edu/BRL/publications/Rep114.pdf](http://rcs.ee.washington.edu/BRL/publications/Rep114.pdf)

Sticking To The Point: A Friction And Adhesion Model For.. - Jun Chen Christopher (1997) (Correct)  
(2 citations)

...into contact with the surface. These models were designed for and implemented on the PHANTOM **force-feedback** device marketed by SensAble Technologies. Early implementations were also tested on the Argonne... /... and Adhesion Model for Simulated Surfaces," citeProceedings of the Sixth Annual Symposium on **Haptic** Interfaces for Virtual Environment and Teleoperator Systems/cite, Dallas, Texas. November... /... magnitude is independent of the direction of the force the force due to adhesion increases as a **spring force** until the maximum force is reached, then drops back to zero over some distance (simulating a...

[www.cs.unc.edu/Research/nano/doc/papers/sticking\\_to\\_point.pdf](http://www.cs.unc.edu/Research/nano/doc/papers/sticking_to_point.pdf)

Inertial Force Feedback For A Locomotion Interface - Robert Christensen (1998) (Correct)  
(1 citation)

... **INERTIAL FORCE FEEDBACK FOR A LOCOMOTION INTERFACE** Robert R. Christensen John M. Hollerbach Yangming Xu Sanford G. Meek... /... The purpose was to make locomotion on the Treadport more like locomotion on the ground. The **feedback force** was applied to the user by a mechanical tether. Psychophysical experiments were performed to... /... The results showed that all eleven subjects preferred inertial **force feedback** when compared to a **spring force** or no force. 1 INTRODUCTION One of the challenges of virtual reality research is to simulate...

[www.cs.utah.edu/~jmh/Christensen98.ps](http://www.cs.utah.edu/~jmh/Christensen98.ps)

Investigating the Use of Force Feedback for Motion-Impaired.. - Simeon Keates Patrick (2000)

(Correct)

...for All" Short Paper CNR-IROE, Florence, Italy 25-26 October 2000 Investigating the use of **force feedback** for motion-impaired users Simeon Keates 1 , Patrick Langdon 1 , John Clarkson 1 and Peter... /...of human-computer interaction (HCI), can improve interaction rates if implemented carefully. **Haptic** feedback is not really exploited in the existing HCI paradigm, so offers a potential method for... /...that outer circle causes the cursor to become subject to the gravity and it is attracted by a **spring force** towards the centre. The average times obtained across all the users are shown in Figure 1. Figure ... ui4all.ics.forth.gr/UI4ALL-2000/files/Short\_papers/Keates.pdf

A Learning Methodology for Robotic Manipulation of.. - Ayanna Howard George (Correct)

...category, deformation of the object is usually incorporated directly into force calculation and **force feedback** is utilized to ensure grasp stability [1]. Some of the systems focus on deformation control... /...on the  $n$  th particle are accumulation of external force, inertial force, damping force and **spring force**. Using Newton's law of motion, the partial differential equation for motion for the  $n$  th ... /...forces acting on the  $n$  th particle are accumulation of external force, inertial force, damping force and **spring force**. Using Newton's law of motion, the partial differential equation for motion for the  $n$  th ... robotics.jpl.nasa.gov/people/howard/WACdeform.pdf

The Simulation of Elastic Tissues in Virtual.. - Radetzky.. (Correct)

...calculated, so that the tissues can be 'felt' by the prospective surgeon. For this, the use of a **force feedback** model is of special importance. The elasticity of structures can be described by use of... /...as integrators (see, for example, [5] or [8]). position velocity acceleration external forces **spring forces** velocity output position output Figure 2: Neurons describing the mass point dynamic Let  $t$  be... fuzzy.cs.uni-magdeburg.de/publications/radetNuernPretsKru98.pdf

Physically Based Modeling: Principles and Practice - Constrained Dynamics Andrew (1997) (Correct)

... feedback term can be just a damped **spring force**, pulling the particle back onto a unit circle. The **feedback force** needs to be added in after the constraint force calculation, or else the constraint force will... /...with rest length  $r$  makes the particles it connects "want" to be distance  $r$  apart. However, the **spring force** competes with all other forces acting on the particles-gravity, other springs, forces applied...

www.cs.cmu.edu/~baraff/sigcourse/notesf.pdf

A Framework For Collision Detection And Response - Lennerz, Schömer, Warken (Correct)

...This enables the assembly engineer to intuitively manipulate all objects in spite of missing **force feedback** mechanisms. Figure 1 demonstrates the principle: Figure 1: The insertion of a bolt into a... /... acting during a collision consists in using springs. If two objects are going to interpenetrate, a **spring force** depending on the penetration depth pushes them apart. Physically more correct models for the... www-hotz.cs.uni-sb.de/~schoemer/publications/ESS99.ps.gz

Display Of Friction In Virtual Environments Based On Human.. - Nahvi Hollerbach (1998) (Correct)

...for virtual environments. Since a user's fingertip is often placed inside a ring or thimble of a **haptic** interface , the finger pad cannot move relative to the finger structure as freely as it would... /...is proportional to the normal force. It pulls the **haptic** interface towards  $c$  (stick center). The **spring force** at this moment is:  $f_k f_{jj} n_{jj} (a \backslash \Gamma c) d_{jj} n_{jj} v_{jj} v_{jj} (2)$  As long as the... www.cs.utah.edu/~jmh/Nahvi98b.ps

Try your query at: [Amazon](#) [Barnes & Noble](#) [Google \(RI\)](#) [Google \(Web\)](#) [CSB](#) [DBLP](#)



[> home](#) [> about](#) [> feedback](#) [> logout](#)

US Patent &amp; Trademark Office

## Search Results

Search Results for: [(force feedback or haptic) and spring force and icon]  
Found 1 of 95,430 searched. → Rerun within the Portal

Search within Results

[> Advanced Search](#) [> Search Help/Tips](#)


---

Sort by: **Title** **Publication** **Publication Date** **Score**  **Binder**

---

**Results 1 - 1 of 1**    **short listing**

---

- |  |  |     |
|--|--|-----|
| <b>1</b>   | The nanomanipulator  | 77% |
|  | Russell M. Taylor , Warren Robinett , Vernon L. Chi , Frederick P. Brooks , William V. Wright , R. Stanley Williams , Erik J. Snyder<br>Proceedings of the 20th annual conference on Computer graphics and interactive techniques September 1993 |     |

---

**Results 1 - 1 of 1**    **short listing**

---

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2002 ACM, Inc.





[> home](#) [> about](#) [> feedback](#) [> logout](#)  
US Patent & Trademark Office

## Search Results

Search Results for: [(force feedback or haptic) and spring force and button]  
Found 4 of 95,430 searched. → Rerun within the Portal

Search within Results



[> Advanced Search](#) [> Search Help/Tips](#)

Sort by: **Title** **Publication** **Publication Date** **Score** **Binder**


**Results 1 - 4 of 4**   **short listing**

- 1** The design of 3D haptic widgets 80%  
 Timothy Miller , Robert Zeleznik  
Proceedings of the 1999 symposium on Interactive 3D graphics April 1999
- 2** Short Talks: Understanding how to improve the accessibility of computers through cursor control studies 77%  
 Simeon Keates , P. John Clarkson , Peter Robinson  
Conference Extended Abstracts on Human Factors in Computer Systems April 2002  
People with motion-impairments often find it difficult to perform many of the actions required to interact with a computer. This paper presents the results of an on-going series of experiments designed to understand how using force feedback affects interaction for motion-impaired users. Point and click tasks were analyzed using new cursor control measures. The results showed significant improvement in throughput for all users with force-feedback and the cursor control measures were effective in ...
- 3** Papers: Tactile user interface: Haptic techniques for media control 77%  
 Scott S. Snibbe , Karon E. MacLean , Rob Shaw , Jayne Roderick , William L. Verplank , Mark Scheeff

Proceedings of the 14th annual ACM symposium on User interface software and technology November 2001

We introduce a set of techniques for haptically manipulating digital media such as video, audio, voicemail and computer graphics, utilizing virtual mediating dynamic models based on intuitive physical metaphors. For example, a video sequence can be modeled by linking its motion to a heavy spinning virtual wheel: the user browses by grasping a physical force-feedback knob and engaging the virtual wheel through a simulated clutch to spin or brake it, while feeling the passage of individual frames.

...

- 4** Passive force feedback for velocity control 77%  
 Mark A. Paton , Colin Ware  
Proceedings of the CHI '94 conference companion on Human factors in computing systems April 1994

---

**Results 1 - 4 of 4      short listing**

---

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2002 ACM, Inc.

[IEEE HOME](#) | [SEARCH IEEE](#) | [SHOP](#) | [WEB ACCOUNT](#) | [CONTACT IEEE](#)[Membership](#) | [Publications/Services](#) | [Standards](#) | [Conferences](#) | [Careers/Jobs](#)**IEEE Xplore™**  
RELEASE 1.4Welcome  
United States Patent and Trademark Office[Help](#) | [FAQ](#) | [Terms](#) | [IEEE Peer](#) | [Quick Links](#)» [Search](#)[Review](#)

Welcome to IEEE Xplore™

Your search matched **[0]** of **[769174]** documents.

- ☐ Home
- ☐ What Can I Access?
- ☐ Log-out

**Tables of Contents**

- ☐ Journals & Magazines
- ☐ Conference Proceedings
- ☐ Standards

**Search**

- ☐ By Author
- ☐ Basic
- ☐ Advanced

**Member Services**

- ☐ Join IEEE
- ☐ Establish IEEE Web Account

 [Print Format](#)

You may refine your search by editing the current search expression or entering a new one in the text box. Then click search Again.

(force feedback or haptic) and spring force and button

**OR**

Use your browser's back button to return to your original search page.

**Results:**

No documents matched your query.

[Home](#) | [Log-out](#) | [Journals](#) | [Conference Proceedings](#) | [Standards](#) | [Search by Author](#) | [Basic Search](#) | [Advanced Search](#) | [Join IEEE](#) | [Web Account](#) | [New this week](#) | [OPAC Linking Information](#) | [Your Feedback](#) | [Technical Support](#) | [Email Alerting](#) | [No Robots Please](#) | [Release Notes](#) | [IEEE Online Publications](#) | [Help](#) | [FAQ](#) | [Terms](#) | [Back to Top](#)

Copyright © 2002 IEEE — All rights reserved

[IEEE HOME](#) | [SEARCH IEEE](#) | [SHOP](#) | [WEB ACCOUNT](#) | [CONTACT IEEE](#)[Membership](#) [Publications/Services](#) [Standards](#) [Conferences](#) [Careers/Jobs](#)**IEEE Xplore™**  
RELEASE 1.4Welcome  
United States Patent and Trademark Of[Help](#) [FAQ](#) [Terms](#) [IEEE Peer](#) [Quick Links](#)» [Se](#)[Review](#)

Welcome to IEEE Xplore™

Your search matched **[0]** of **[769124]** documents.

- ☐ Home
- ☐ What Can I Access?
- ☐ Log-out

**Tables of Contents**

- ☐ Journals & Magazines
- ☐ Conference Proceedings
- ☐ Standards

**Search**

- ☐ By Author
- ☐ Basic
- ☐ Advanced

**Member Services**

- ☐ Join IEEE
- ☐ Establish IEEE Web Account

 [Print Format](#)

You may refine your search by editing the current search expression or entering a new one the text box. Then click search Again.

(force feedback or haptic) and spring force and icon

**OR**

Use your browser's back button to return to your original search page.

**Results:**

No documents matched your query.

[Home](#) | [Log-out](#) | [Journals](#) | [Conference Proceedings](#) | [Standards](#) | [Search by Author](#) | [Basic Search](#) | [Advanced Search](#)  
[Join IEEE](#) | [Web Account](#) | [New this week](#) | [OPAC Linking Information](#) | [Your Feedback](#) | [Technical Support](#) | [Email Alerting](#)  
[No Robots Please](#) | [Release Notes](#) | [IEEE Online Publications](#) | [Help](#) | [FAQ](#) | [Terms](#) | [Back to Top](#)

Copyright © 2002 IEEE — All rights reserved

[IEEE HOME](#) | [SEARCH IEEE](#) | [SHOP](#) | [WEB ACCOUNT](#) | [CONTACT IEEE](#)[Membership](#) [Publications/Services](#) [Standards](#) [Conferences](#) [Careers/Jobs](#)**IEEE Xplore™**  
RELEASE 1.4Welcome  
United States Patent and Trademark Office[Help](#) [FAQ](#) [Terms](#) [IEEE Peer](#) [Quick Links](#)[» Search](#)[Review](#)

Welcome to IEEE Xplore™

- ☐ Home
- ☐ What Can I Access?
- ☐ Log-out

**Tables of Contents**

- ☐ Journals & Magazines
- ☐ Conference Proceedings
- ☐ Standards

**Search**

- ☐ By Author
- ☐ Basic
- ☐ Advanced

**Member Services**

- ☐ Join IEEE
- ☐ Establish IEEE Web Account

 [Print Format](#)Your search matched **[0]** of **[769124]** documents.

You may refine your search by editing the current search expression or entering a new one in the text box. Then click search Again.

**OR**

Use your browser's back button to return to your original search page.

**Results:**

No documents matched your query.

[Home](#) | [Log-out](#) | [Journals](#) | [Conference Proceedings](#) | [Standards](#) | [Search by Author](#) | [Basic Search](#) | [Advanced Search](#)  
[Join IEEE](#) | [Web Account](#) | [New this week](#) | [OPAC Linking Information](#) | [Your Feedback](#) | [Technical Support](#) | [Email Alerting](#)  
[No Robots Please](#) | [Release Notes](#) | [IEEE Online Publications](#) | [Help](#) | [FAQ](#) | [Terms](#) | [Back to Top](#)

Copyright © 2002 IEEE — All rights reserved

IEEE HOME | SEARCH IEEE | SHOP | WEB ACCOUNT | CONTACT IEEE

Membership Publications/Services Standards Conferences Careers/Jobs

**IEEE Xplore**<sup>TM</sup>  
RELEASE 1.4Welcome  
United States Patent and Trademark Of[Help](#) [FAQ](#) [Terms](#) [IEEE Peer](#) [Quick Links](#) [Review](#)

Welcome to IEEE Xplore

- ☐ Home
- ☐ What Can I Access?
- ☐ Log-out

Tables of Contents

- ☐ Journals & Magazines
- ☐ Conference Proceedings
- ☐ Standards

Search

- ☐ By Author
- ☐ Basic
- ☐ Advanced

Member Services

- ☐ Join IEEE
- ☐ Establish IEEE Web Account

 Print FormatYour search matched **29** of **769174** documents.Results are shown **25** to a page, sorted by **publication year** in **descending** order.

You may refine your search by editing the current search expression or entering a new one the te

Then click **Search Again**.**Results:**Journal or Magazine = **JNL** Conference = **CNF** Standard = **STD****1 Rotary haptic knob for vehicular instrument controls***Badescu, M.; Wampler, C.; Mavroidis, C.*

Haptic Interfaces for Virtual Environment and Teleoperator Systems, 2002. HA 2002. Proceedings. 10th Symposium on , 2002

Page(s): 342 -343

[\[Abstract\]](#) [\[PDF Full-Text \(369 KB\)\]](#) **CNF****2 Haptic subdivision: an approach to defining level-of-detail in haptic rendering***Jian Zhang; Payandeh, S.; Dill, J.*

Haptic Interfaces for Virtual Environment and Teleoperator Systems, 2002. HA 2002. Proceedings. 10th Symposium on , 2002

Page(s): 201 -208

[\[Abstract\]](#) [\[PDF Full-Text \(384 KB\)\]](#) **CNF****3 Design and control of a two degree of freedom haptic device for the application of PC video games***Byunghoon Bae; Taeh Koo; Kyihwan Park; Yongdae Kim*

Intelligent Robots and Systems, 2001. Proceedings. 2001 IEEE/RSJ Internatio Conference on , Volume: 3 , 2001

Page(s): 1738 -1743 vol.3

[\[Abstract\]](#) [\[PDF Full-Text \(493 KB\)\]](#) **CNF****4 A new haptic interface device capable of continuous-time impedanc within sampling-period: application to hard surface display**